

Instructions:

In order to calculate the reference ET using the Penman-Montieth equation¹, <http://www.wildblueberries.maine.edu/PDF/Production/Penman-MontiethETworksheet631solarestimate.xlsm> the daily values of temperature, relative humidity, and wind speed must be known for your location. These values can usually be obtained online from weather websites. Daily total solar flux values are rarely reported by weather websites but can be either measured directly using a pyranometer (\$350-\$600) or estimated using a number of different equations. In our worksheet, an estimate of daily total solar flux will automatically be calculated and incorporated into the determination of reference ET if the cell for daily total solar flux is left blank. Day of the year values can be obtained from the accompanying chart, and an approximate estimate of the elevation, latitude and distance of your site from the coast are all that are necessary for completing the data input. The resulting daily reference ET value, given in inches of water, can then be multiplied by the crop coefficient for wild blueberry (0.70 for the period May through August) to obtain an estimate of crop water usage for a given day.

Example:

	Add Values Below
Day of the Year (August 3)	215
Latitude	44.6
Approximate distance from coast > 25 miles (yes or no)	no
Daily Minimum Relative Humidity (%)	50
Daily Maximum Relative Humidity (%)	97
Daily Average Relative Humidity (%)	82
Daily Average Air Temperature (F)	68
Daily Maximum Air Temp (F)	86
Daily Minimum Air Temp (F)	59
Daily Total Solar Flux (MJ/m ²)	17.2
Daily Average Wind Speed (mph)	5.1
Elevation above sea-level (ft)	165

**Penman-Montieth Reference ET
(inches/day)**

0.157445863

Crop water use: 0.7 x 0.16 inches/day = 0.11 inches/day

1) The Penman-Montieth grass reference evapotranspiration values produced by this worksheet were derived using the guidelines established in FAO Irrigation and Drainage paper 56: Crop evapotranspiration - Guidelines for computing crop water requirements (Allen et al. 1998).

Note: Approximate distance from the coast will only affect the reference ET value if daily total solar flux is estimated.